

AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A recombinant fusion peptabody, which binds to an epidermal growth factor receptor selected from the group consisting of ErbB-1, ErbB-3, and/or ErbB-4, comprising:

(a) a cartilage oligomer matrix polypeptide comprising amino acid residues 16 to 64 of SEQ ID NO:2~~portion which is capable of oligomerizing;~~

(b) a peptide enhancer sequence having an amino acid sequence selected from the group consisting of YSFE (SEQ ID NO: 5), YSFEDL (SEQ ID NO: 6), and YSFEDLYRR (SEQ ID NO: 9) and located at the N terminus of the peptabody;

(c) a hinge region of an immunoglobulin polypeptide comprising amino acid residues 65 to 83 of SEQ ID NO:2, located at the C terminus of the cartilage oligomer matrix polypeptide portion; and

(d) an epidermal growth factor receptor ligand selected from the group consisting of any of SEQ ID NOs:10-29, which can bind to the epidermal growth factor receptor, located at the C terminus of the hinge region,

wherein said recombinant fusion peptabody is capable of inducing cellular death in a cell expressing said epidermal growth factor receptor.

2-3. **(Canceled)**

4. **(Previously Presented)** The recombinant fusion peptabody of claim 1, wherein said recombinant fusion peptabody is multimeric.

5-7. **(Canceled)**

8. **(Previously Presented)** The recombinant fusion peptabody of claim 1, further comprising a polyhistidine tag sequence.

9. **(Previously Presented)** The recombinant fusion peptabody of claim 1, further comprising at least one effector region.

10. **(Previously Presented)** The recombinant fusion peptabody of claim 9, wherein the effector region comprises a cytotoxin or a detection moiety.

11. **(Canceled)**

12. **(Previously Presented)** The recombinant fusion peptabody of claim 10, wherein said detection moiety is fluorescent.

13-16. **(Canceled)**

17. **(Previously Presented)** A pharmaceutical composition comprising the recombinant fusion peptabody of claim 1, and a pharmaceutically acceptable carrier.

18-27. **(Canceled)**

28. **(Currently Amended)** A kit for treating cancer characterized by expression of an epidermal growth factor receptor[[s]] selected from the group consisting of ErbB1, ErbB3, and ErbB4, in a human patient, said kit comprising the recombinant fusion peptabody of claim 1 and/or instructions for administering the recombinant fusion peptabody to the human patient for the treatment of cancer.

29. **(Currently Amended)** The kit of claim 28, further comprising a separate pharmaceutical dosage form comprising an additional anti-cancer agent selected from the group consisting of a chemotherapeutic agent[[s]], an anti-epidermal growth factor receptor[[s]] antibody, a radioimmunotherapeutic agent[[s]], and combinations thereof.

30. **(Currently Amended)** A kit for diagnosing cancer characterized by expression of an epidermal growth factor receptor[[s]] selected from the group consisting of ErbB1, ErbB3, and ErbB4, in a human patient, said kit comprising the recombinant fusion peptabody of claim 10, and instructions for use.

31-42. **(Canceled)**

43. **(Currently Amended)** A recombinant fusion peptabody, which binds to the epidermal growth factor receptor ErbB-1 comprising:

(a) a human cartilage oligomer matrix polypeptide comprising amino acid residues 16 to 64 of SEQ ID NO: 2;

(b) a peptide enhancer sequence for increasing protein production, located at the N terminus of the peptabody and having a sequence selected from the group consisting of YSFE (SEQ ID NO: 5), YSFEDL (SEQ ID NO: 6), and YSFEDLYRR (SEQ ID NO: 9);

(c) a hinge region of an immunoglobulin polypeptide comprising amino acid residues 65 to 83 of SEQ ID NO: 2, located at the C terminus of the cartilage oligomer matrix polypeptide; and

(d) an epidermal growth factor receptor ligand selected from the group consisting of any of SEQ ID NOs:10-29, which binds to the epidermal growth factor receptor and is located at the C terminus of the hinge region,

wherein said recombinant fusion peptabody is capable of inducing cellular death in a cell expressing the epidermal growth factor receptor.

44. **(Currently Amended)** A monomer of a peptabody comprising

(a) a cartilage oligomer matrix polypeptide comprising amino acid residues 16 to 64 of SEQ ID NO:2~~portion which is capable of oligomerizing~~;

(b) an enhancer peptide sequence having an amino acid sequence selected from the group consisting of YSFE (SEQ ID NO: 5), YSFEDL (SEQ ID NO: 6), and YSFEDLYRR (SEQ ID NO: 9) and located at the N terminus of the peptabody;

(c) a hinge region of an immunoglobulin polypeptide comprising amino acid residues 65 to 83 of SEQ ID NO:2, located at the C terminus of the cartilage oligomer matrix polypeptide portion; and

(d) an epidermal growth factor receptor ligand selected from the group consisting of any of SEQ ID NOs:10-29, located at the C terminus of the hinge region, wherein the epidermal growth factor receptor ligand binds to an epidermal growth factor receptor selected from the group consisting of ErbB-1, ErbB-3 or ErbB-4.

45. **(Previously Presented)** The monomer of claim 44, wherein said monomer forms a multimeric molecule.
46. **(Previously Presented)** The monomer of claim 45, wherein the multimeric molecule is pentameric or decameric.
47. **(Canceled)**
48. **(Canceled)**
49. **(Currently Amended)** An isolated and recombinant fusion peptabody, which binds to an epidermal growth factor receptor selected from the group consisting of ErbB-1, ErbB-3, and ErbB-4, comprising:
 - (a) ~~a humanized or human cartilage oligomer matrix polypeptide comprising amino acid residues 16 to 64 of SEQ ID NO:2~~portion which is capable of oligomerizing;
 - (b) a peptide enhancer sequence having an amino acid sequence selected from the group consisting of YSFE (SEQ ID NO: 5), YSFEDL (SEQ ID NO: 6), and YSFEDLYRR (SEQ ID NO: 9) and located at the N terminus of the portion of the cartilage oligomer matrix polypeptide;
 - (c) a hinge region comprising amino acid residues 65 to 83 of SEQ ID NO:2, comprising 19 amino acids of an immunoglobulin polypeptide, located at the C terminus of the cartilage oligomer matrix polypeptide portion; and
 - (d) an epidermal growth factor receptor ligand selected from the group consisting of any of SEQ ID NOs:10-29, which binds to the epidermal growth factor receptor and is located at the C terminus of the hinge region,wherein said isolated and recombinant fusion peptabody is capable of inducing cellular death in a cell expressing said epidermal growth factor receptor.
50. **(Previously Presented)** The recombinant fusion peptabody of claim 43, wherein said recombinant fusion peptabody is multimeric.
- 51-52. **(Canceled)**

53. **(Previously Presented)** The recombinant fusion peptabody of claim 43, further comprising a polyhistidine tag sequence.
54. **(Previously Presented)** The recombinant fusion peptabody of claim 43, further comprising at least one effector region.
55. **(Previously Presented)** The recombinant fusion peptabody of claim 54, wherein the effector region comprises a cytotoxin or a detection moiety.
56. **(Previously Presented)** A kit for treating cancer characterized by expression of ErbB1 in a human patient, said kit comprising the recombinant fusion peptabody of claim 43 and/or instructions for administering the recombinant fusion peptabody to the human patient for the treatment of cancer.
57. **(Currently Amended)** The kit of claim 56, further comprising a separate pharmaceutical dosage form comprising an additional anti-cancer agent selected from the group consisting of a chemotherapeutic agent[[s]], an anti-epidermal growth factor receptor[[s]] antibody, a radioimmunotherapeutic agent[[s]], and combinations thereof.
58. **(Previously Presented)** A kit for diagnosing cancer characterized by expression of ErbB1 in a human patient, said kit comprising the recombinant fusion peptabody of claim 55, and instructions for use.
59. **(Currently Amended)** A recombinant fusion peptabody, which binds to the epidermal growth factor receptor ErbB-3 or ErbB4 comprising:
- (a) a human cartilage oligomer matrix polypeptide comprising amino acid residues 16 to 64 of SEQ ID NO: 2;
 - (b) a peptide enhancer sequence for increasing protein production, located at the N terminus of the peptabody and having a sequence selected from the group consisting of YSFE (SEQ ID NO: 5), YSFEDL (SEQ ID NO: 6), and YSFEDLYRR (SEQ ID NO: 9);
 - (c) a hinge region of an immunoglobulin polypeptide comprising amino

acid residues 65 to 83 of SEQ ID NO: 2, located at the C terminus of the cartilage oligomer matrix polypeptide; and

(d) an epidermal growth factor receptor ligand selected from the group consisting of any of SEQ ID NOs:10-29, located at the C terminus of the hinge region,

wherein said recombinant fusion peptabody is capable of inducing cellular death in a cell expressing the epidermal growth factor receptor.

60. **(Previously Presented)** The recombinant fusion peptabody of claim 59, wherein said recombinant fusion peptabody is multimeric.

61-62. **(Cancelled)**

63. **(Previously Presented)** The recombinant fusion peptabody of claim 59, further comprising a polyhistidine tag sequence.

64. **(Previously Presented)** The recombinant fusion peptabody of claim 59, further comprising at least one effector region.

65. **(Previously Presented)** The recombinant fusion peptabody of claim 64, wherein the effector region comprises a cytotoxin or a detection moiety.

66. **(Previously Presented)** A kit for treating cancer characterized by expression of ErbB1 in a human patient, said kit comprising the recombinant fusion peptabody of claim 59 and/or instructions for administering the recombinant fusion peptabody to the human patient for the treatment of cancer.

67. **(Currently Amended)** The kit of claim 66, further comprising a separate pharmaceutical dosage form comprising an additional anti-cancer agent selected from the group consisting of a chemotherapeutic agent[[s]], an anti-epidermal growth factor receptor[[s]] antibody, a radioimmunotherapeutic agent[[s]], and combinations thereof.

68. **(Previously Presented)** A kit for diagnosing cancer characterized by expression of ErbB1 in a human patient, said kit comprising the recombinant fusion peptabody of claim 65, and instructions for use.